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Notes on Four Interesting *Echiniscus* (Tardigrada) from Japan*

With 5 Text-figures

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(Communicated by Y. ABE)

Specimens of these animals were obtained this spring among mosses at Mt. Sara and Mt. Ishizuchi.

1. *Echiniscus* (*Hypechiniscus*) *gladiator* JOHN MURRAY 1905 (Fig. 1)

This is only one species belonging to the interesting subgenus *Hypechiniscus*. It is very easy to distinguish this species from other Tardigrada since it has a long dorsal spine at the front edge of the third plate. The length of the dorsal spine is usually 52μ in specimens of about 180μ body length.

Fig. 1 shows a cysted body.

(Hab.) Mt. Sara, Ehime Prefecture, Japan, 1000m. above sea level (in *Dicranum japonicum* MITT.); Faeroe; Scotland, from 1200m.; Shetland Islands, about 500m.; Ireland, about 600m.; British-Columbia, Vancouver; New Zealand, North and South Island, about 1100m.

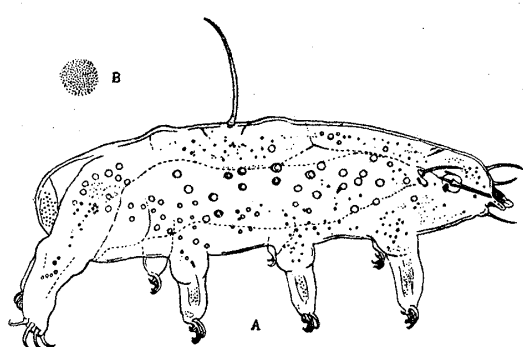


Fig. 1. A. The encysted body of *Echiniscus* (*Hypechiniscus*) *gladiator* JOHN MURRAY.
B. The fine punctures on the encysted body of *E. (H.) gladiator*.

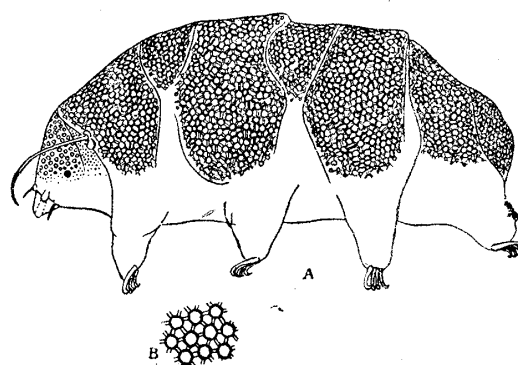


Fig. 2. A. *Echiniscus* (*Echiniscus*) *elegans* RICHTERS.
B. The sculpts on the plate of *E. (E.) elegans*.

* Contributions from Biological Institute, Ehime University. No. 5.

2. *Echiniscus* (*Echiniscus*) *elegans* RICHTERS 1906 (Fig. 2)

This has been described by RICHTERS from one specimen which he obtained at Nagasaki. But in spite of the wide distribution of these animalcules no other specimens of this species have ever been found in any other part of the world.

A relatively small Tardigrada, body length 170–200 μ .

(Hab.) Mt. Sara, about 1000m. above sea level (in *Dicranum japonicum* MITT.); The neighbourhood of Nagasaki.

3. *Echiniscus* (*Echiniscus*) *japonicus* n. sp. (Fig. 3, 4)

At first sight this species resembles *Echiniscus* (*E.*) *reticulatus* described by John MURRAY in 1905. But the circular or hexagonal boundary in the plates of this species is several times larger than those of the new species. The circular or hexagonal boundary lines make a hollow space like transparent ditches which form a contrast to the opaque inner parts (Fig. 3, B). The fine puncture on the circular inner parts are very clearly seen. The end plate has two facets (Facette) and clover blade-notches (Kleeblattkerben). The hairs at (a) (called Cirrus lateralis) are like those of *E. (E.) reticulatus* but are somewhat shorter.

They are 92 μ in length on a body of 220 μ . The specimen having a length of 240 μ have hairs 80 μ long as in Fig. 3, A. The spines on the two anterior legs are not so sharp as those on the *E. (E.) reticulatus*.

There is a papilla on each of the posterior legs.

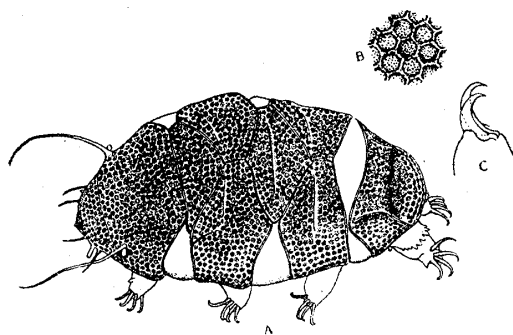


Fig. 3. A. *Echiniscus* (*E.*) *japonicus* n. sp.
B. The sculptures and the superficial fine punctures on the plate of *E. (E.) japonicus*.
C. The outer and inner claw of *E. (E.) japonicus*.

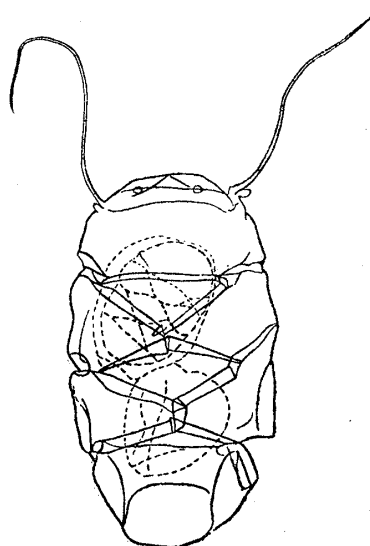


Fig. 4.

The spine-fold (Dornfalte) does not have bifurcated spines.

On all the inner claws there are subhooks (Nebenhaken) which can be seen only by means of oil-immersion (Fig. 3, C). The eggs are laid in the exuviae as shown in Fig. 4 and are generally only two in number.

The larva which remains in the exuviae has four completely formed claws in the eggcase.

Fig. 4 shows the place where a larva has already come out from the exuviae on the side of the figure.

(Hab.) Mt. Ishizuchi, Ehime Prefecture, about 2800m. above sea-level (in *Macromitrium prolongatum* MITT.?).

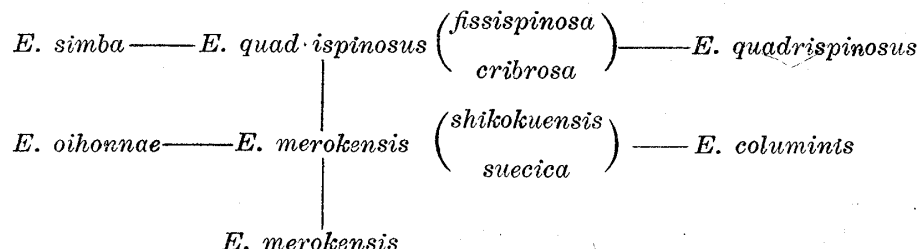
4. *Echiniscus* (*Echiniscus*) *merokensis* RICHTERS forma *shikokuensis* n. forma (Fig. 5).

The fundamental species, *Echiniscus* (*E.*) *merokensis* is very commonly found, but this forma maintains an independent population and does not mingle with the fundamental species.

It is similar to *E. (E.) merokensis* RICHTERS forma *suecica* THULIN 1911, but the dorsal hairs at the position of (d) are usually longer than those of (c), and are always over 20μ , but in *E. (E.) merokensis suecica*, the spines at (d) are less than 6μ in length. All the paired hairs are often unsymmetrical, and resemble those of *E. (E.) merokensis suecica* in length.

Also, in the construction of the plates and the hairs it resembles *E. (E.) quadrispinosus* RICHTERS 1802, and it is closely related to *E. (E.) oihonnae* RICHTERS 1903.

The relationship among those animalcules may be taken as follows:



Body length 136–200 μ .

(Hab.) Mt. Ishizuchi, Ehime Prefecture, about 2800. above sea-level (in *Pterobryum arbuscula* MITT.).

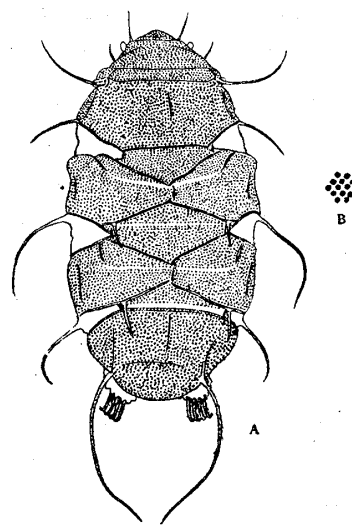


Fig. 5. A. *Echiniscus* (*E.*) *merokensis shikokuensis* n. forma.
B. The punctures on the plate of *E. (E.) merokensis shikokuensis*.